

City was only slightly affected. At the same time, the volcano near Colima erupted, setting fire to forests. These fires further threatened Colima.

Recent Earthquakes recorded at Kew

FOUR large earthquakes have been recorded at Kew in the period March 23–April 13. The first was received at 22h. 41m. 17s. G.M.T. on March 28 and may have been from an epicentre 19,000 km. distant, though the initial movements were confused by microseisms. The second was at 10h. 52m. 19s. on April 1, probably from an epicentre 7,870 km. distant, while the third, at 15h. 34m. 31s. G.M.T. on April 3, had its epicentre 9,180 km. away. This latter had a particularly prominent wave on all three components at 15h. 33·5m. G.M.T., which may have been *e*SSS. An earthquake giving a full suite of pulses had *i*P dilatational at 23h. 40m. 27s. G.M.T. on April 7 and did not cease recording until 3h. 20m. G.M.T. on April 8. It probably had its epicentre 7,920 km. distant from Kew, though all calculated epicentral distances are tentative.

Canadian Polar Year Expeditions

THE first volume of a work which describes the observations carried out by the Canadian Polar Year Expeditions, 1932–33, is largely statistical; but there is a general introduction by Dr. J. Patterson, the director of the Canadian Meteorological Service, and notes on the instruments at the Expeditions' four stations—Cape Hope's Advance, Chesterfield Inlet, Coppermine and Meanook, together with maps and photographs (Dominion of Canada: Department of Transport, Air Services Branch, Division of Meteorological Services of Canada. Canadian Polar Year Expeditions, 1932–33, Meteorology: Cape Hope's Advance, Chesterfield Inlet, Coppermine, Meanook. Vol. 1. Pp. xvi + 443 + 46 plates. Ottawa: King's Printer, 1940). Meanook (Alberta) is a permanent magnetic station—the nearest to the north magnetic pole—the other three stations were temporarily set up for this undertaking. The statistical matter which, as has already been mentioned, occupies a very large proportion of the volume, consists mainly of hourly values of atmospheric pressure, temperature, humidity, precipitation, sunshine and wind velocity, to which are added full particulars of the upper winds revealed by numerous observations with pilot balloons, and notes on optical phenomena. The period covered—August 1932–September 1933—is long enough to illustrate the inhospitable climate of these regions, with frequent gales and strong winds, and a long and severe winter. The complete absence of trees, and even of bushes, worthy of the name, at the more northerly stations needs no other explanation.

At Coppermine, pilot balloon observations were supplemented by seventy-four soundings with kites carrying Marvin meteorographs lent by the U.S. Weather Bureau, but the results do not appear to be given in this volume. The same station was supplied with several Patterson flashing-lamp balloon meteoro-

graphs. This is a very light form of meteorograph which indicates pressure and temperature by the lighting up of a string of electric bulbs suspended by a silk cord beneath the balloon, an observation consisting of the identification of the bulbs shining at a particular moment. Graphs of temperature observations up to 2 km. obtained in this way in March 1933 are given, all of which show at least one inversion or disappearance of lapse of temperature with height, below 1 km. At Meanook, the most southerly of the four stations (54° 37' N.), noctilucent clouds of the kind described by Størmer were observed on the night of July 20–21, 1933, at a height exceeding 55 km. This appears to be the first occasion on which such clouds have been noted in America.

A Plastic for Thermal Insulation

IN the electrical industry cellulose acetate is widely used in both sheet form and as mouldings. A multi-layer insulating material, made from cellulose acetate, and known as 'Isoflex', is described in the *Electrician* of March 7. Isoflex is manufactured from cellulose acetate film and in structure is not unlike corrugated cardboard used for packing purposes, with about five layers to each inch of thickness. It has a thermal conductivity of 0·32 B.T.H.U. per hour per sq. ft. per in. thickness per 1° F. difference of temperature, so that its insulation properties compare very favourably with slab-cork (0·25 B.T.H.U.), glass-fibre (0·28 B.T.H.U.) and wood fibre board (0·38 B.T.H.U.). Its volume weight of 0·75 lb. per cu. ft. works out at about one-tenth that of slab-cork. This makes it of considerable interest in connexion with thermal insulation during transport.

Isoflex is non-porous and non-absorbent, with the result that its thermal insulation is not impaired by the deposition of moisture in the material. Its construction in the tubular form allows free draining of condensed moisture. From the constructional point of view it is very easy to handle, as it can readily be cut by a knife. It will withstand wear and tear, and it does not disintegrate under the severe vibration of a railway coach; it is inert to salt water, thus making it suitable for marine work. It will not ignite or burn by itself, and therefore its installation does not result in an increase in the fire risk. However, it melts at about 175° C. and it is not suitable for heat insulation at temperatures which exceed 75° C. Isoflex is available in two types of slab. One type, known as the standard slab, is 24 in. square and is rigid; the other, the flexible slab, measures 23 in. × 20 in. By cutting one or other of these slabs, and by using a combination of them, any desired shape can be built up without difficulty.

Electric Supply in Churches

THE eighth report of the Central Council for the Care of Churches includes a timely memorandum for the guidance of parochial authorities about to install new lighting apparatus, and a series of regulations to be observed by contractors. In a preface to the regulations is a statement that the work must comply with the regulations of the Institution of

Electrical Engineers. Cables must be rubber- or paper-insulated and must be run in heavy-gauge solid-drawn galvanized-welded screw conduit (preferably) or in heavy-gauge welded screw conduit. Alternatively, 'Pyrotenax' may be employed. Attention is directed to a modification of an electric soldering iron for heating sealing compound, which enables joints to be made on the spot instead of entailing removals to a bench for heating with a blow lamp, in order to avoid risk of fire where timber is adjacent.

Cables of the supply undertaking should be taken into the building for as short a distance as possible and run only on brick or stone walls. Distribution boxes and fuses must be in cast iron cases. Instrument panels should be well clear of walls and should be of slate or other non-inflammable material; if of wood, only teak may be used. The wiring of ancient brass candelabra is condemned, as it would be almost impossible to remove the detachable brasses for cleaning. Electroliers or fittings must be hung on chains and their weight must not be borne by electric cables or flexible cords. All reachable metal work is to be earthed. Any relay or other circuit carried to a switch at an organ keyboard for starting a blower must be run in screwed conduit or be of 'Pyrotenax'; the starting switch must be in a metal case mechanically and electrically continuous with the circuit and with the approved earth connexion.

American Philosophical Society Publications

THE American Philosophical Society has issued a list of books and papers in the Society's publications from 1769 until 1940 classified according to subject. This covers the papers, monographs, treatises and books, classified according to subject, and includes a subject index as well as a classified list, an author index and a price list. The *Transactions* of the Society is the oldest scientific journal with a continuous history in the United States, commencing in 1769; the six volumes issued in small quarto format up to 1809 are known as the "old series" and are out of print except for a few numbers. A new series was started in the present large quarto format in 1818, and to date thirty-one volumes have been issued.

The *Proceedings*, commenced in 1938, contain the original papers read before the Society as well as others accepted for publication. In view of the interest and value of some of the early material to the research student and historian, certain abstracts of papers read before the Society, verbal communications, letters on scientific and learned subjects, etc., included in the early *Proceedings* have been reproduced in the list. The *Memoirs*, commenced in 1935, consist of monographs and books each constituting a separate volume of the series, of which fifteen volumes have now been issued. In addition to its serial publications, the American Philosophical Society has published or sponsored for publication a number of separate works which are listed under "Miscellaneous Publications". Its library also maintains a photo-duplication service for supplying

35-mm. microfilm copies of out-of-print articles and manuscript material. Printed books are copied at the rate of 3 cents per standard frame, usually 2 pages per exposure. Manuscript is copied at the rate of 4 cents, usually 1 page, per exposure.

The Night Sky in May

THE duration of night (sunset to sunrise) decreases from 9.3 hours on May 1 to 7.7 hours on June 1 in the latitude of London. Full moon is on May 11 and new moon on May 26. No bright star is occulted by the moon during the month. There is a general absence of bright planets in the night sky of this month. Jupiter and Saturn are now too near the sun for observation. Towards the end of May, however, conditions are favourable for seeing Mercury in the low western sky after sunset. In mid-May, Mars is nearly 5° above the eastern horizon soon after 3h. 30m. U.T., but sunrise is shortly after 4h. (add 2 hours to convert to new Summer Time). About this date the following constellations are near the southern meridian at dusk: Ursa Major, Canes Venatici, Coma Berenices, Bootes, Leo, Virgo, Crater, Corvus and Hydra. Pleasing in its symmetry is the formation of seven stars of medium brightness in Corona Borealis. A nova appearing near ϵ Coronæ Borealis in 1866 added to the lustre of this 'crown'.

University of Birmingham: Air Raid Damage

IN a recent air raid, many bombs fell in the grounds of the University of Birmingham, and the chemistry buildings were hit. Fortunately, very little damage was done.

Civil List Pensions

A LIST of the pensions granted during the year ended March 31, 1941, and payable under the Civil List Act, 1937, has recently been issued. Among them are the following: *New Pensions*: Mrs. Mary Browne (services of her husband, the late Dr. Charles Browne, to anthropology), £100; Dr. C. C. Hurst (discoveries in science of genetics and their application to agriculture, horticulture and sociology), £130; Sir Alfred Matthews (services to agriculture), £150; *Supplementary Pensions*: Mrs. Jessie Bennett (services of her husband, the late Mr. Arthur Bennett, to botanical science: additional to £60), £40; Miss Fanny Bryant (services of her father, the late Mr. Thomas Bryant, to surgery: additional to £30), £70; Mrs. Barbara Kaye (services of her husband, the late Mr. Walter J. Kaye, to archæology: additional to £60), £40; Mrs. Johanna Miller (services of her husband, the late Dr. N. H. J. Miller, to agricultural science: additional to £50), £50; Miss Eleanor S. Sowerby (botanical works of her father, the late Mr. J. E. Sowerby: additional to £50), £50; Mrs. Elsie V. Sullivan (services of her husband, the late Mr. J. W. N. Sullivan, to literature: additional to £75), £25; Miss Helen S. Tichborne (scientific discoveries of her father, the late Prof. Tichborne, in chemistry and pharmacology: additional to £60), £40; Mrs. Ada E. Scott (services of her husband, the late Mr. Andrew Scott, to zoological science: additional to £80), £30.